
CASE REPORT

Rare Breast Epidermal Cyst with Radiological-pathological Correlation

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ABSTRACT

Epidermal inclusion cyst is a common cutaneous condition. However, epidermal cyst deep in the breast parenchyma is rare. Diagnosis can be difficult if there is no suspicious clinical history. An onion-ring appearance on ultrasonography with alternating concentric hyperechoic and hypoechoic rings has been described, corresponding to the laminated keratin. Biopsy should be performed if clinically indicated. We report a case of breast epidermal cyst in a Chinese woman.

Key Words: Breast; Epidermal cyst; Ultrasonography

中文摘要

罕見乳房表皮囊腫病例及放射病理學關聯

鄭珊珊、朱嘉敏、趙朗峯

表皮囊腫是一種常見皮膚病。然而，表皮囊腫發生於乳腺深部實質罕見。如無可疑的臨床病史，診斷困難。超聲檢查顯示同中心強迴聲和低迴聲環交替的「洋蔥環」狀，對應分層的角蛋白。如有臨床指徵，則需活檢。本文報告一例乳房表皮囊腫的華籍女性病人。

INTRODUCTION

Epidermal cyst of the breast is a rare condition. This entity is seldom included as one of the main differential diagnoses of benign breast lesions. We report a case of enlarging breast mass in a woman in her 40s. Mammographic and ultrasonographic findings are presented.

CASE REPORT

In April 2014, a 47-year-old Chinese woman who had good past health was referred for a self-detected right breast mass of 4 years. The mass was slowly increasing

in size. There were no associated nipple discharge or skin changes. She did not have a prior history of breast surgery or hormonal medication consumption. She had no family history of breast cancer. On physical examination, the mass was located at the 8 o'clock position in the right breast and was very mobile. No associated skin changes or axillary lymph nodes were found.

Mammogram revealed a 4-cm equal density mass lesion with obscured border at the lower outer quadrant of the right breast (Figure 1). The lesion corresponded to

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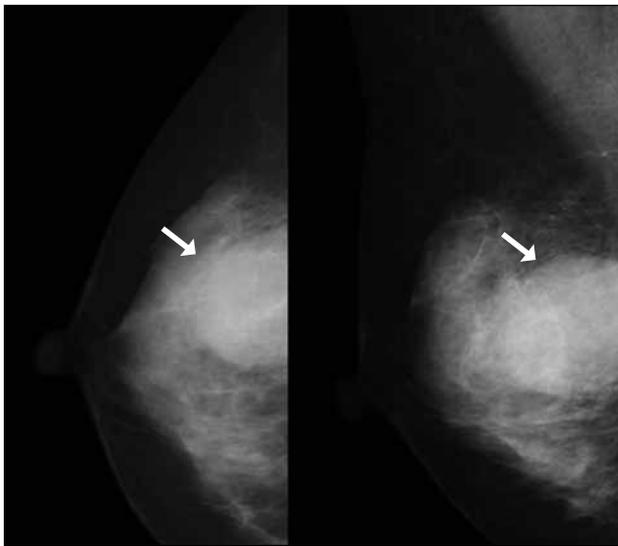


Figure 1. Mammogram of a woman with epidermal inclusion cyst shows a 4-cm equal density mass with obscured border (arrows).

a hypoechoic parallel mass lesion with smooth margin on subsequent ultrasound. The mass also showed concentric hyperechoic and hypoechoic rings (Figure 2). There was no posterior enhancement. Doppler ultrasonography was performed and no increased vascularity was demonstrated (Figure 3).

The lesion was categorised as a Breast Imaging Reporting and Data System 3 lesion (probably benign finding). Differential diagnoses included phyllodes (large size, inhomogeneous solid mass, middle-aged woman) and fibroadenoma (well-defined, parallel hypoechoic lesion, no skin involvement). Core biopsy was performed and the biopsy samples revealed a large amount of laminated keratin with two sections of benign-looking squamous mucosa covered by laminated keratin, suggestive of epidermal cyst. Repeated biopsy was performed with a consistent histology result. Surgical excision of the mass lesion was carried out. The gross specimen consisted of a section of fibroadipose tissue and multiple sections of cyst wall-like material and friable material (Figure 4). Microscopically, the sections showed a large epidermal cyst wall lined by stratified squamous epithelium with a granular layer and laminated keratin content (Figure 4).

DISCUSSION

Epidermal inclusion cyst is a common benign cutaneous condition. Epidermal inclusion cyst represents proliferation of squamous epithelium within a confined

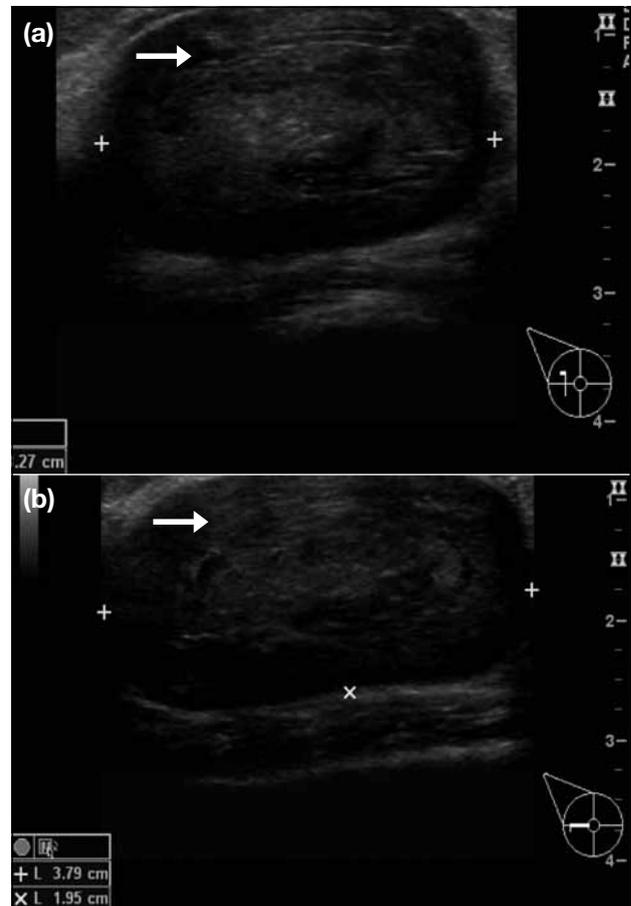


Figure 2. Ultrasonography shows a well-defined hypoechoic lesion with concentric hyperechoic and hypoechoic rings (arrows): (a) longitudinal and (b) transverse view.

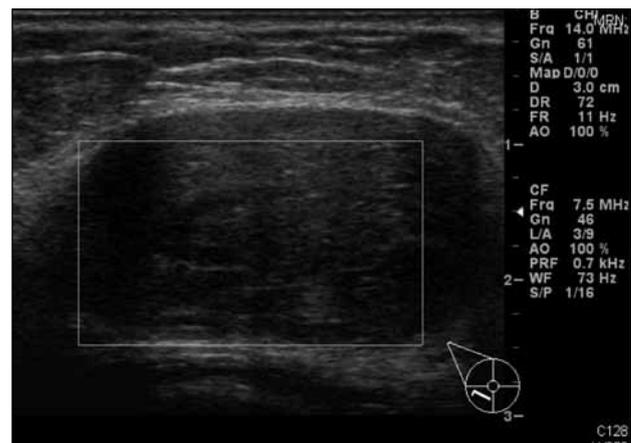


Figure 3. Doppler ultrasonography shows no internal vascularity.

space in the dermis or subdermis, containing lamellated keratin.¹ The condition can occur anywhere, but is most often seen in the face, neck, and trunk. There may be a predilection towards the inframammary fold.² Epidermal

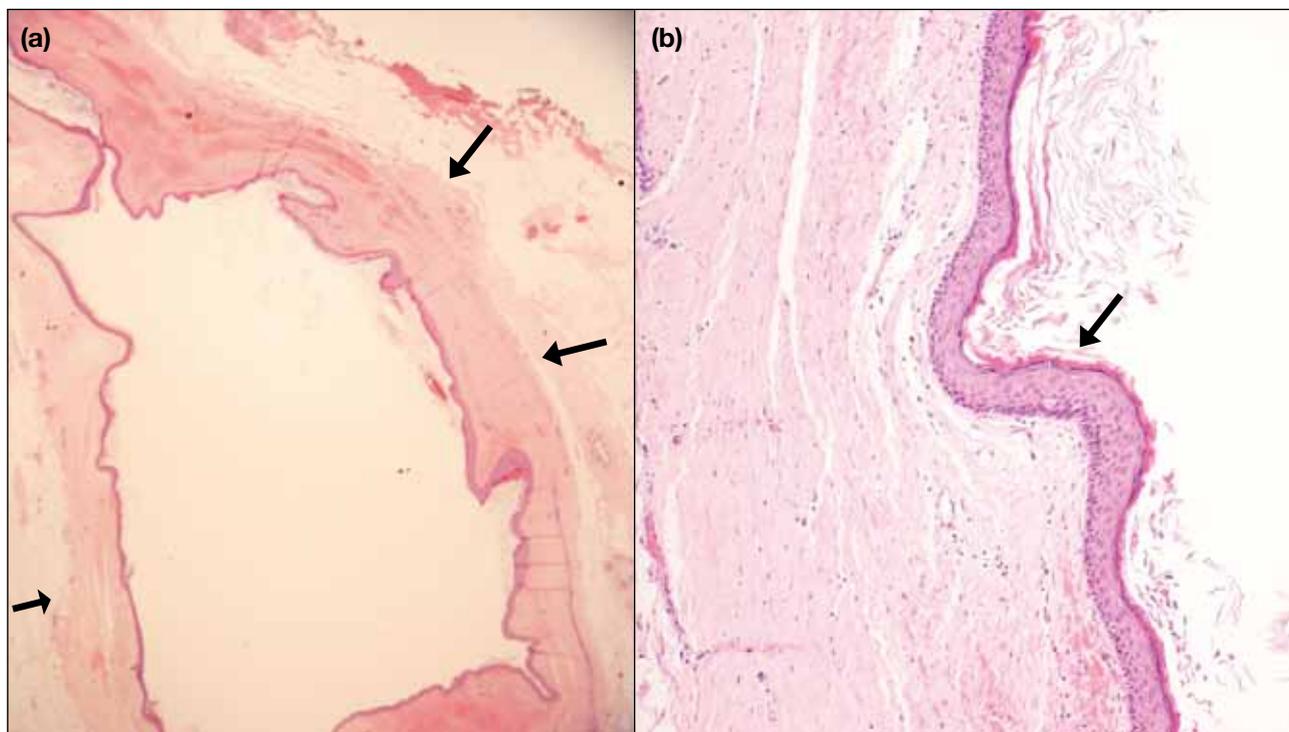


Figure 4. Histopathology shows (a) the entire epidermal cyst (arrows; H&E, original magnification: x 10); and (b) the cyst wall lined by stratified squamous epithelium with a granular layer and laminated keratin content (arrows; H&E, original magnification: x 100).

inclusion cyst in the breast is rare. There are fewer than 30 reports in the English-language literature, and cases from Hong Kong have not been reported.

Epidermal inclusion cysts can be congenital, occur after fine-needle aspiration cytology or biopsy,³ be traumatic following reduction mammoplasty⁴ or breast augmentation,⁵ or developmental following squamous metaplasia of normal columnar cells within a dilated duct in cases of fibrocystic disease.⁶

Typical epidermal inclusion cysts present with a well-circumscribed mass lesion attaching to the skin. Misdiagnoses are common if these masses are found within the breast parenchyma.⁷

Mammography and ultrasound may show benign features, typically a solid, circumscribed, and homogeneous mass.¹ Extension into the dermis has been described as a specific feature of breast epidermal inclusion cyst.⁵ An onion-ring appearance with alternating concentric hyperechoic and hypoechoic rings has also been described, corresponding to the laminated

keratin.¹ This patient's cyst also demonstrated an onion-ring appearance on ultrasound, corresponding to the laminated keratin on histology. Features mimicking malignancy such as a solid mass with an ill-defined border and heterogeneous echogenicity can be found in some reports. These are possibly due to complications such as rupture or inflammation.⁷ Larger lesions can mimic giant fibroadenoma or phyllodes tumours,⁸ or even a malignant breast lesion with benign features such as mucinous carcinoma.⁶ Some authors suggest that biopsy is unnecessary if typical sonographic, mammographic, and clinical findings are seen.⁸ In view of its rare occurrence, however, biopsy remains an important component of the triple assessment,⁹ and should be carried out. Repeated biopsy is recommended for lesions of high clinical suspicion.

Excision is recommended for suspected malignancy, phyllodes, or giant fibroadenoma. Malignant transformation has been reported with variable incidence, ranging from 0.045% to 19%.^{9,10} It is recommended that these lesions be resected due to the risk of inflammation and the possible malignant potential.⁷

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